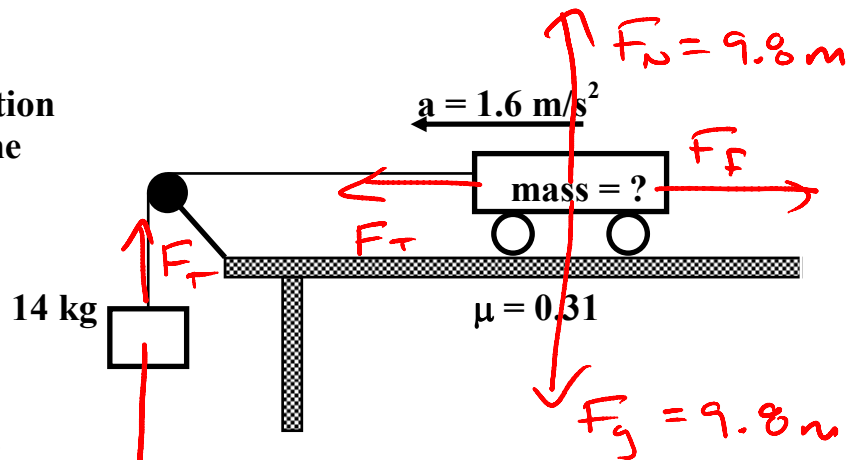
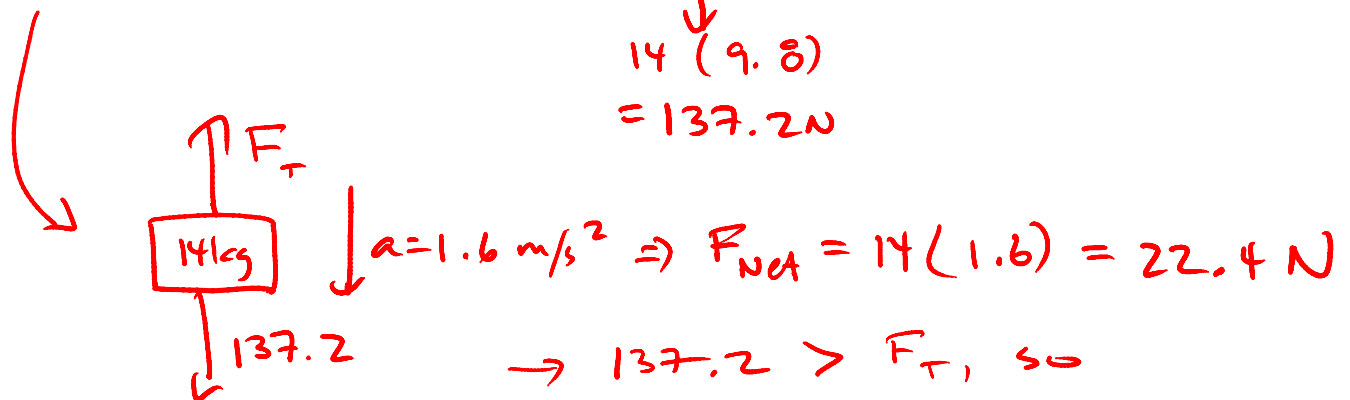


Example #16. Given the information in the diagram to the right, find the unknown mass of the cart.



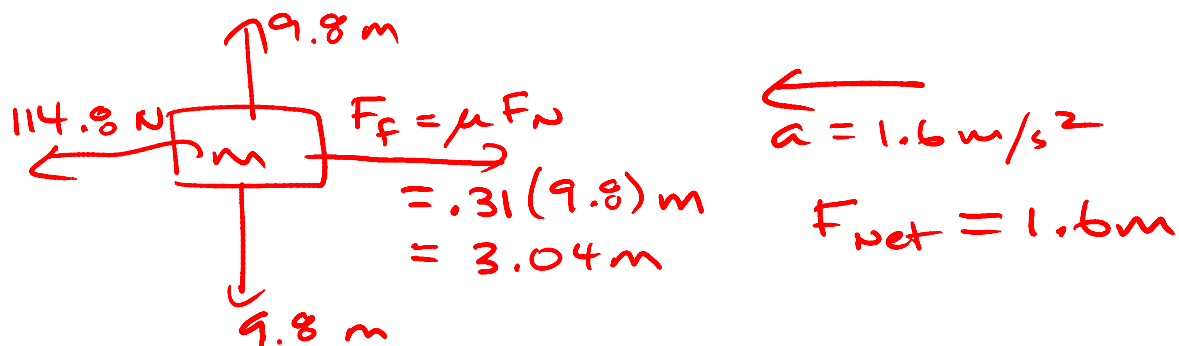
Hint: start by isolating the known mass to find tension F_T in the string.



$$F_{\text{net}} = 137.2 - F_T$$

$$F_T = 137.2 - 22.4 = 114.8 \text{ N}$$

\rightarrow f.b.d. of cart:



$$\rightarrow 114.8 > F_f, \text{ so } F_{\text{net}} = 114.8 - F_f$$

$$1.6m = 114.8 - 3.04m$$

$$\boxed{m = 25 \text{ kg}}$$